EXHIBIT C

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

DECLARATION OF DR. OMID KIA, Ph.D. REGARDING CLAIM CONSTRUCTION

NETWORK MONITORING LLC

vs.

SKYSCANNER LTD.

Case No. 2:21-cv-00148-JRG

February 28, 2022

I. QUALIFICATIONS AND BACKGROUND INFORMATION

1. My name is Dr. Omid Kia, Ph.D. I am over eighteen years of age and I would be competent to testify as to the matters set forth herein if I am called upon to do so.

2. I have been retained by Fabricant LLP, counsel for the Plaintiff Network Monitoring LLC (hereinafter referred to as "Network Monitoring"), in connection with this action to consider how one of ordinary skill in the art to which the Asserted Patents in this action are directed would have understood (at the time of the invention) the claim terms set forth in this Declaration. I may also be asked to rebut the proposed constructions and/or indefiniteness of the Asserted Patents that Defendant Skyscanner Ltd. ("Defendant" or "Skyscanner") has proposed in its claim construction disclosures.

3. This Declaration contains my opinions with respect to the subject matter of this proceeding and with the understandings as set forth herein. I specifically reserve the right to formulate and offer additional or supplemental opinions based on any additional information, discovery, or evidence that may be provided or derived, future court rulings, or agreements between the parties, to the extent permitted by the Court.

4. It is my understanding that Network Monitoring is currently asserting the following claims against Defendant (collectively, the "Asserted Claims"):

U.S. Patent No.	Claim Nos.
9,058,416	Claims 1-10 of the '416 patent
9,680,946	Claims 1-2, 10-15, 17-18, and 25-30 of the '946 patent

5. It is my understand that the Asserted Claims share a common specification as the '946 Patent is a continuation of the '416 Patent.

6. I anticipate being called to provide expert testimony before the U.S. District Court for the Eastern District of Texas regarding my opinions formed, resulting from my review of the Asserted Patents, the relevant file histories, and other invalidity arguments or contentions raised by Defendants. If called, I will so testify.

7. I hold a Ph.D. in electrical engineering from the University of Maryland at College Park. I also hold the degrees of Bachelor and Master of Science in the same field.

8. I am currently a senior systems engineer serving as a subject matter expert at Coastal Communication Consultants, Inc. (hereinafter referred to as "CCCi"). In this capacity, I serve as an expert in all of CCCi's initiatives involving high technology research and development and serve as an expert in all of CCCi's activities pertaining to data, signal and imaging sciences, system implementation, and programming. CCCi designs and develops systems for Signal Intelligence (SIGINT) and Communications Intelligence (COMINT), among other efforts, with intercepting wired and wireless communications to extract, process, analyze and visualize.

9. Prior to joining CCCi, I served as the Chief Image Scientist as Northstrat Inc. (hereinafter referred to as "Northstrat"). In this capacity, I served as a subject matter expert in all of Northstrat's research and development activities pertaining to data, signal, and imaging sciences. Northstrat expanded its business into product-based services and, as such, utilized my innovative approach to develop high technology software products that carried a service-based revenue model. In particular, I served as the subject matter expert in a SIGINT capacity to analyze streaming imagery and embedded content from a wireless network; and provide web services for delivery and tracking of content to end-users.

10. Prior to joining Northstrat, I served as the Senior Staff Scientist at ITT Exelis, Space Sciences Division (hereinafter referred to as "ITT Exelis") in the exact same capacity. ITT Exelis is a leader in Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) related products, systems, information, and technical services, supplying military, government, and commercial customers in the United States and globally. ITT Exelis is a pure-play aerospace, defense, and information solutions company with strong positions in enduring and emerging global markets, with 20,000 employees, and 2010 revenues of about $6 billion. In particular, I provided web service architecture design and development expertise for delivery of images, processing capability, and record keeping.

11. Prior to joining ITT Exelis, I served as the Chief Scientist at Imaging Sciences International, Inc. where my efforts included large scale software development for image acquisition and review of machines, graphical user interfaces, embedded systems design and implementation, algorithm design and development, and photonics that catapulted the company into the leading Cone Beam Computed Tomography (CBCT) provider in the world. The application of CBCT was targeted for the general dental market, with first adopters including implantologists but later other providers. After the purchase of Imaging Sciences International, Inc. by Danaher Corporation, the new business unit continues Danaher's efforts to expand into other dental fields, in which I also served as the Subject Matter Expert for all efforts involving dental imaging. In particular I lead a design team along with directly design and develop client-server applications for machine control, image storage and web services, and customer service web services.

12. Prior to joining Imaging Sciences, I researched and developed numerous medical and consumer technologies involving digital imaging, review station software, and automation. These

activities included hardware and software design throughout the entire image chain, user workflows and networked communications. I performed these tasks while at Sigma Vision and IMACOM.

13. Prior to forming Sigma Vision I directed research and development efforts at Portris as the senior vice president for an enterprise level software system. The suite of products under development utilized capture of user interaction with media, including networked sources, media processing and understanding using distributed processing techniques with complex networked datastores organized in relational databases. Development of client server systems with front and back office implementations were used to tie database elements stored as knowledge buckets to form tangible media.

14. In brief, and with particular relevance to the subject matter of these proceedings, my background and qualifications to be an expert witness in this matter are as follows. I received my Ph.D. degree in Electrical Engineering from the University of Maryland at College Park in 1997. My thesis addressed the compression and processing of images and has content spanning parameter estimation, feature recognition, compression, and communication theory and application with the work done in the University of Maryland Institute for Advanced Computer Studies. The academic portion of the degree covered all aspects of data, signal, and image processing. The research portion of the degree covered the general area of content delivery with aspects covering compression, communication, processing, networking, and analysis in a concentric and network distributed environments.

15. Immediately after my graduation, I continued work in media compression and processing at the Compression Group in the Information Technology Laboratory of the National Institutes of Standards and Technology. In this role, I continued my research and expanded on similar topics

across several media forms. In particular, I served as the United States Government Ambassador to the MPEG standardization group which demonstrated my ability to apply the same concepts considered in my thesis to streaming video and audio data. In this role, I utilized many data retrieval concepts including those associated with digital libraries to levy data compression and searching. I also applied media scaling for a distributed mobile platform leveraging compressed-domain processing of media for images, video and multimedia content.

16. Since 1999, I have held technical leadership positions in image and signal processing fields for delivery of highly technical solutions to the market. I oversaw and participated in the software and hardware development activities for various products. All of these development activities included design and development of large assortments of algorithm and system developments involving networked and distributed resources.

17. From 1999 to 2009, I served as the leading technical scientist and engineer at various commercial entities in both medical and business services. With respect to the medical imaging portion, while at IMACOM, Sigma Vision, and Imaging Sciences International, I lead teams and also contributed to the research and development of products in general areas of medical imaging and non-destructive testing systems requiring content delivery to end user. With respect to the business services portion, while at Portris, I lead multiple teams to bring together the collaborative knowledge management suite using a diverse set of talents spanning networking, database, media processing, and visualization. This included development of an enterprise level solution with variations to cover an extensive set of business cases and processes to match.

18. Since 2009, I have served as a subject matter expert at ITT Exelis, Northstrat and now in Coastal Communication Consultants for government contracts. In this capacity, I have leveraged my expertise in data representation and processing to address a wide range of problems which

included signal and network data extraction, processing, and dissemination thereof in distributed systems. These activities were broadly pursued in both concept and implementation through proposal submissions and development into real systems. Some of these systems, mostly related to security systems, involved meta-data processing with complex workflows.

19. I have extensive experience in areas of software development, data modeling, database systems, data communication, and distributed systems, including as discussed below.

> Full lifecycle software development as requirements management, solution architecture, implementation and testing. Large and small scale software development ranging from Enterprise class solution development to small embedded real time software development. Design and develop large array of algorithms for signal, image, video and content processing. Performance and algorithmic analysis of software components with strong mathematical basis.
>
> In charge of front-end application development, all research and development effort, high level algorithm development and technology assessment.
>
> Implemented the relational aspect in a database utilizing an appropriate data model that supported several abstract applications. Also provided key components of knowledge representation and modeling from inception to development. Was the leading technology and solution provider in all areas of computing, operating systems, development platform, front-end systems, back-end systems and knowledge representation.
>
> Also in this position, as software engineer, designed threading software for real-time storage, improved image processing capabilities and compression, created custom software, and planned, designed and implemented new customer solutions.
>
> Initiated interest in video indexing and digital library metrics research in the group. Performed as a principal investigator in the above projects.

20. I am an inventor on a number of patents directed to distributed systems, management systems, and database systems utilizing authentication, data records, algorithms, and specific processing to address unique challenges for challenging problems.

21. Because of my background, training, and experience, I am qualified as an expert to opine on the patents-in-suit. A more detailed account of my work experience and other qualifications is listed in my Curriculum Vitae attached to this Declaration.

II. UNDERSTANDING OF THE APPLICABLE LAW

22. I understand that claim terms should be given their ordinary and customary meaning within the context of the patent in which the terms are used, *i.e.*, the meaning that the terms would have to a person of ordinary skill in the art in question at the time of the invention in light of what the patent teaches, unless it appears that the inventors were using them to mean something else. Additionally, the specification and prosecution history must be consulted to confirm whether the patentee has acted as his/her own lexicographer (*i.e.*, provided special meaning to any disputed terms), or intentionally disclaimed, disavowed, or surrendered any claim scope.

23. I understand that a person of ordinary skill in the art is deemed to read a claim term not only in the context of the particular claim in which the disputed term appears, but also in the context of the entire patent, including the specification, and the prosecution history. The prosecution file history provides evidence of how both the Patent Office and the inventors understood the terms of the patent, particularly in light of what was known in the prior art. Further, where the specification describes a claim term broadly, arguments and amendments made during prosecution may require a more narrow interpretation. For these reasons, the words of the claim must be interpreted in view of, and be consistent with, the entire specification. The specification is the primary basis for construing the claims and provides a safeguard such that correct constructions closely align with the specification. Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim as set forth in the patent itself.

24. I understand that, to determine how a person of ordinary skill would understand a claim term, one should look to those sources available that show what a person of skill in the art would have understood disputed claim language to mean. Such sources include the words of the claims themselves, the remainder of the patent's specification, the prosecution history of the patent (all considered "intrinsic" evidence), and "extrinsic" evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art. I understand that one looks primarily to the intrinsic patent evidence, but extrinsic evidence may also be useful in interpreting patent claims when the intrinsic evidence itself is insufficient.

25. Additionally, the context in which a term is used in the Asserted Claim can be highly instructive. Likewise, other claims of the patent in question, both asserted and not asserted, can inform the meaning of a claim term. For example, because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.

26. I understand that, while intrinsic evidence is of primary importance, extrinsic evidence, *e.g.*, all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises, can also be considered. For example, technical dictionaries may help one better understand the underlying technology and the way in which one of skill in the art might use the claim terms. Extrinsic evidence should not be considered, however, divorced from the context of the intrinsic evidence. Evidence beyond the patent specification, prosecution history, and other claims in the patent should not be relied upon unless the claim language is ambiguous in light of these intrinsic sources. Furthermore, while

extrinsic evidence can shed useful light on the relevant art, it is less significant than the intrinsic record in determining the legally operative meaning of claim language.

27. I understand that the Supreme Court of the United States has instructed that, in order for a claim to be definite, "a patent's claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty." The Supreme Court also warned that "the definiteness requirement must take into account the inherent limitations of language . . . Some modicum of uncertainty . . . is the price of ensuring the appropriate incentives for innovation." The Court also stated that "a patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them."

28. I understand that, in general, a term or phrase found in the introductory words of the claim, the preamble of the claim, should be construed as a limitation if it recites essential structure or steps, or is necessary to give life, meaning, and vitality to the claim. Conversely, a preamble term or phrase is not limiting where a patentee defines a structurally-complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention. In making this distinction, one should review the entire patent to gain an understanding of what the inventors claimed they actually invented and intended to encompass by the claims.

29. I understand that language in the preamble limits claim scope (i) if dependence on a preamble phrase for antecedent basis indicates a reliance on both the preamble and claim body to define the claimed invention; (ii) if reference to the preamble is necessary to understand limitations or terms in the claim body; or (iii) if the preamble recites additional structure or steps that the specification identifies as important. Otherwise, the preamble is not limiting.

30. It is also my understanding that method claims do not generally require the cited steps to take place in any particular order.

31. Other considerations I made, detailed below, help one to achieve a proper interpretation of the claims.

III. MATERIALS CONSIDERED

32. In forming my opinions, in addition to my knowledge and experience, I have considered the materials cited in this Declaration and the following documents which either I have obtained or have been provided to me: the Asserted Patents and their file histories; the alleged prior art documents referenced in Defendant's Invalidity Contentions; and the extrinsic evidence identified in Defendant's 4-2 disclosures.

33. In addition to the materials provided to me, I have also relied on my own education, training, experience, and knowledge in the field of networking and network security.

34. I may rely on any of these materials, experiences, and knowledge, in addition to the evidence specifically cited as supportive examples in particular sections of this declaration, as additional support for my opinions.

35. I reserve the right to supplement or amend this declaration if additional facts and information that affect my opinions become available.

IV. LEVEL OF ORDINARY SKILL IN THE ART

36. It is my understanding that I must address the issues set forth in this Declaration from the viewpoint of a person of ordinary skill in the art at the time of the invention to which the Asserted Patents pertain.

37. It is my opinion that the person of ordinary skill in the art ("POSITA") for each of the patents-in-suit would have at least a bachelor's degree in computer science or computer engineering with one to two years of experience in the field of programming for web and client-

server services and internet routing, or the equivalent education and work experience. Extensive experience and technical training might substitute for educational requirements, while advanced degrees might substitute for experience.

V. CLAIM CONSTRUCTION

TERMS RELATED TO U.S. PATENT NOS. 9,058,416 AND/OR 9,680,946

A. "form[ing] parameter data based upon predetermined selection parameters from the database"

38. The term "form[ing] parameter data based upon predetermined selection parameters from the database" appears in Claims 1 and 6 of the '416 Patent and in Claim 1 and 17 of the '946 Patent. A POSITA would understand this term to have its plain and ordinary meaning and would understand the meaning of the term with reasonable certainty. I conclude that this term is not indefinite.

39. In my opinion, a POSITA would have understood that the '416 and '946 Patents describe "parameters" consistent with its plain and ordinary meaning and would understand that meaning with reasonable certainty. For example, the specification recites:

- "Provided herein in a preferred embodiment is a computerized system and method for tracking and reporting online activity across a plurality of clients and servers which intercepts and logs secure and non-secure HTTP request and response pages, analyzes each of the received page records, associates each page record to an event type based on user-defined **parameters**, identifies and extracts user-defined attributes of each page record based on its event type, and reports on the occurrence of the event along with its associated attributes." '416 Patent, 4:16-25.
- "URLs, as they are generally used in the worldwide Web, are formatted to contain four pieces of information: the request protocol, the hostname or Domain Name Server (DNS) address of the server site, an optional port number, and a path. … The path typically points to a specific resource at the specified host, and may contain optional **parameters**." '416 Patent, 6:9-20.
- "In its preferred embodiment, the URL-proxy records referral **parameters** along with the HTTP-transmission by encoding the **parameters** within the rewritten URL. Referral **parameters** are user-defined **parameters** that may be used to logically group and query report data. The URL-proxy preferably records and

associates the following referral **parameter** with an HTTP transmission: a referral site, a source code, and a category code." '416 Patent, 6:60-67.

- "A parse-method object 306 represents an algorithm and algorithm **parameters** for extracting attributes from a logged-page record." '416 Patent, 10:26-29.
- "A parse-method expresses the type of algorithm and any algorithm-specific **parameters** to be used for extracting attribute data from an identified-page record." '416 Patent, 11:44-47.
- "The event-sequence-code field is a user-defined **parameter** of the site-page-event record." '416 Patent, 13:24-27.
- "As a variant to the preferred embodiments, the session detail, event detail and purchase detail reports may also be queried by the category code and source code referral **parameters** for sessions that have been recorded by a URL-rewriting proxy agent. They return the following additional fields per record that matches the query: the referral site, the category code and the source code." '416 Patent, 16:10-17.
- "As a variant to the preferred embodiment, the purchase summary report may return the category code and source code referral **parameters** for sessions that have been recorded by a URL-rewriting proxy agent." '416 Patent, 16:24-45.
- "According to the application architecture of an embodiment of the present invention, the storage medium 1 70 stores logged-page records, user-defined **parameters** for identification and extraction (hereinafter, "site profiles"), extracted parse-attributes, event data and report data." '416 Patent, 16:46-50.
- "Site profiles are the user-defined **parameters** used by the identification, extraction and analysis modules to: identify the site for a logged-page record; associate logged-page records with site-pages; associate site-pages with event triggers, event pre-triggers, and parse-methods. Site profiles are preferably created, amended and validate by profilers, which are authorized users that create, amend and validate profiles using a graphical user interface." '416 Patent, 18:15-19.
- "7.3.2.3. Enter additional parser-specific **parameters**." '416 Patent, Col. 19, Table 6.
- "2.3.3. Enter additional parser-specific **parameters**." '416 Patent, Col. 21. Table 8.

The specification's discussion of "selection parameters" would reinforce a POSITA's understanding of the plain and ordinary meaning of those terms.

40. For example, the '416 and '946 Patents further describe non limiting examples of "form[ing] parameter data based upon predetermined selection parameters from the database" such as "user-defined parameters that may be used to logically group and query report data" and further describes "a referral site, a source code, and a category code." '416 Patent at 6:60-67. A POSITA

would understand that "form[ing] parameter data based upon predetermined selection parameters from the database" is used with its plain and ordinary meaning and would understand the scope of the term with reasonable certainty.

41. Because a POSITA would have understood the plain and ordinary meaning of this term with reasonable certainty, it is not indefinite.

B. "dynamically maintain[ing] the predetermined selection parameters based upon revisable, operator-defined instructions on how to select and extract information from a text page; and analyzing the parameter data sets to predict future user activity"

42. The phrase "dynamically maintain[ing] the predetermined selection parameters based upon revisable, operator-defined instructions on how to select and extract information from a text page; and analyzing the parameter data sets to predict future user activity" appears in Claims 5 and 10 of the '416 Patent. A POSITA would understand this term to have its plain and ordinary meaning and would understand the meaning of the term with reasonable certainty. I conclude that this term is not indefinite.

43. The phrase "the predetermined selection parameters" is definite for at least the reasons set forth above with regard to the term "forming parameter data based upon predetermined selection parameters from the database."

44. A POSITA would have understood that the '416 Patent provides non-limiting examples of "dynamically maintain[ing] the predetermined selection parameters based upon revisable, operator-defined instructions on how to select and extract information from a text page" includes "using the site profile creation" process, including as shown in Table 6:

- "According to the application architecture of an embodiment of the present invention, the storage medium 1 70 stores logged-page records, user-defined parameters for **identification and extraction** (hereinafter, "site profiles"), extracted parse-attributes, event data and report data. In its preferred embodiment, the storage medium is implemented as two logically separate databases-a

transactional database for storing logged-page records, site profiles and transaction processing elements, and a reporting database for storing report data. According to an embodiment of the system and method of the present invention, the reporting database is populated by a SQL script scheduled to run on a nightly basis. The data on the reporting database may be refreshed any time should re-processing of logged-page data become necessary, as when site profiles are amended.

According to the application architecture of an embodiment of the present invention, and referring back to FIG. 1, the profile management module 160 has four components: site management 161, session verification 162, profile reports 163, and administration 164. In its preferred embodiment, the profile management module has a web-based graphical user interface (GUI), and its four components are sections that may be accessed from the GUI main menu.

The site management section provides interfaces for creating, amending and deleting sites, site-domains, site-pages, event-types, attributes, **identification-methods** and parse-methods. It also provides interfaces to view and retrieve various objects, and associate objects with one another. The session verification section provides interfaces for creating sessions and logged-pages for existing sites, viewing an existing session, viewing individual logged-page records within a session, viewing identified logged-pages in a session, and viewing extracted attributes associated with an identified-page. The session verification section also provides interfaces for resetting the session for data **identification, extraction** and analysis. The profile reports section provides a summary view of profile, session, logged-page and event data to assist in the profile management process. It also provides access to application error logs.

Access to the administration section is restricted to authorized personnel. It provides interfaces for: profile user management, event and attribute creation, data purge, data reset and a job manager. Access is restricted to high-level profile administrators. Profile user management interface provides profile user creation, deletion and modification functions. The event and attribute creation interface provides event-type and attribute-type creation, as well as event to attribute association functions. The data purge interface allows the administrator to purge logged-pages and other data based on a date range. The data reset interface allows the administrator to reset status codes on session, logged-page and identified-page records to re-process said records for data **identification, extraction** and analysis. The reset interface also allows the administrator to re-generate data on reporting database for a specified date range. The job-manager interface allows the administrator to start, stop and view daemon jobs that execute the data **identification, extraction** and analysis algorithms, as well as the nightly report generation script.

According to an embodiment of the system and method of the present invention, mirror event tracking systems are deployed for the purposes of profile creation and live traffic analysis. Hereafter, these are respectively referred to as the profiling system and the production system. The profiling system is where site profiles are created, amended and validated. Site profiles are the user-defined parameters used by the **identification, extraction** and analysis modules to: identify the site for a

logged-page record; associate logged-page records with site-pages; associate site-pages with event triggers, event pre-triggers, and parse-methods. Site profiles are preferably created, amended and validate by profilers, which are authorized users that create, amend and validate profiles using a graphical user interface. Profilers are also authorized to synchronize site profile records between the profiling system and the production system.

The following Table provides is an outline description of the profile creation process as performed by a profiler, according to an embodiment of the present invention:

TABLE 6

1. Create a site record.
   - 1.1. Enter a unique site name through the graphical user interface (GUI).
   - 1.2. Enter the site home URL.
   - 1.3. Enter notes
2. Create site-domain records associated with a site.
3. Create a session with logged-pages for a site.
   - 3.1. Using the GUI, invoke a browser to access a site home URL.
   - 3.2. The browser uses a proxy agent to record HTTP transmissions on the site.
   - 3.3. ETS creates a new session, and creates a logged-page record as the profiler browses each page.
   - 3.4. Browse the site for all pages related to tracked events.
   - 3.5. Force the session to expire.
4. Review the session and the logged-pages. For each event to be tracked:
   - 4.1. Locate the trigger page.
   - 4.2. Locate all pages that contain attributes related to the event.
   - 4.3. If the trigger page is loaded by a redirect, mark the redirect as the pre-trigger page.
5. Create site-page records for each logged-page identified in 4.
   - 5.1. Enter a name for the new site-page.
   - 5.2. Create the identification-method for the site-page.
     - 5.2.1. Choose identification-method algorithm.
     - 5.2.2. If signature-matching, enter signature by copying and pasting text from the rendered logged-page, or from the HTML source of the logged-page.
     - 5.2.3. If keyword-indexing, enter keywords and threshold values using the GUI.
6. Create event-type record.
   - 6.1. Enter 3 character event-type identifier.
   - 6.2. Enter description.
   - 6.3. Associate attributes under which event-related content will be parsed.
     - 6.3.1. Create any new attributes required to parse event-related content
       - 6.3.1.1. Enter new attribute's name.
       - 6.3.1.2. Enter notes to describe attribute.
       - 6.3.1.3. Select attribute-data-type.
     - 6.3.2. Add attribute to event.
7. Create site-events to be tracked.
   - 7.1. Select the site.
   - 7.2. Select event-type to be tracked on the site.
   - 7.3. Add all site-pages associated with the site-event.
     - 7.3.1. Identify the event-sequence-code for the site-page.
       - 7.3.1.1. If the site-page is a trigger, enter T.
       - 7.3.1.2. If the site-page is a pre-trigger, enter P.
       - 7.3.1.3. Otherwise, enter any value.
     - 7.3.2. If the site-page contains page attributes used by the event, create a parse-method.
       - 7.3.2.1. Select parser type (HTTP or HTML).
       - 7.3.2.2. Some parsers require a parse-map to parse page-attributes.

TABLE 6-continued

7.3.2.2.1. Retrieved the logged-page record.
7.3.2.2.2. Create a parse-map based on the logged-page record.
7.3.2.2.3. Associate parse-map with the parse-method.
7.3.2.3. Enter additional parser-specific parameters.
8. Validate data identification and event detection.
8.1. Retrieve the session created in 3 for validation.
8.2. Reset expired session for page identification
8.3. Review reprocessed session to confirm that pages are properly identified
8.4. If pages are not properly identified, amend the identification-method.
8.5. Reset session for event detection.
8.6. Review reports to confirm that expected events were detected.
8.7. If events are not properly detected, then
8.7.1. If a site-page was not identified, amend the identification-method.
8.7.2. If the trigger page was not logged, create a new session and log the pages necessary to trigger the event.
8.7.3. If the site-pages and triggers are not properly associated, amend the site-page-event association.
9. Validate data extraction
9.1. Retrieve the session created in 3 for validation.
9.2. Reset the session for data extraction.
9.3. For each identified-page with a parse-method:
9.3.1. Review the extracted parse-attributes to confirm that the page was parsed properly
9.3.2. If parse-attributes are not properly extracted, then amend the parse-map.
10. Export updated site profile data to production system

'416 Patent at 16:45-19:23.

This discussion would have reinforced a POSITA's understanding that claims recite the term consistent with its plain and ordinary meaning, and a POSITA would have understood the term with reasonable certainty.

45. A POSITA would have further understood that the '416 and '946 Patents provides non-limiting examples of "analyzing the parameter data sets to predict future user activity":

- "According to the application architecture of an embodiment of the present invention, the storage medium 1 70 stores logged-page records, user-defined parameters for identification and extraction (hereinafter, "site profiles"), extracted parse-attributes, event data and report data. In its preferred embodiment, the storage medium is implemented as two logically separate databases-a transactional database for storing logged-page records, site profiles and transaction processing elements, and a reporting database for storing report data. According to an embodiment of the system and method of the present invention, the reporting database is populated by a SQL script scheduled to run on a nightly basis. The data on the reporting database may be refreshed any time should re-processing of logged-page data become necessary, as when site profiles are amended.

  According to the application architecture of an embodiment of the present invention, and referring back to FIG. 1, the profile management module 160 has

four components: site management 161, session verification 162, profile reports 163, and administration 164. In its preferred embodiment, the profile management module has a web-based graphical user interface (GUI), and its four components are sections that may be accessed from the GUI main menu.

The site management section provides interfaces for creating, amending and deleting sites, site-domains, site-pages, event-types, attributes, identification-methods and parse-methods. It also provides interfaces to view and retrieve various objects, and associate objects with one another. The session verification section provides interfaces for creating sessions and logged-pages for existing sites, viewing an existing session, viewing individual logged-page records within a session, viewing identified logged-pages in a session, and viewing extracted attributes associated with an identified-page. The session verification section also provides interfaces for resetting the session for data identification, extraction and **analysis**. The profile reports section provides a summary view of profile, session, logged-page and event data to assist in the profile management process. It also provides access to application error logs.

Access to the administration section is restricted to authorized personnel. It provides interfaces for: profile user management, event and attribute creation, data purge, data reset and a job manager. Access is restricted to high-level profile administrators. Profile user management interface provides profile user creation, deletion and modification functions. The event and attribute creation interface provides event-type and attribute-type creation, as well as event to attribute association functions. The data purge interface allows the administrator to purge logged-pages and other data based on a date range. The data reset interface allows the administrator to reset status codes on session, logged-page and identified-page records to re-process said records for data identification, extraction and **analysis**. The reset interface also allows the administrator to re-generate data on reporting database for a specified date range. The job-manager interface allows the administrator to start, stop and view daemon jobs that execute the data identification, extraction and **analysis** algorithms, as well as the nightly report generation script.

According to an embodiment of the system and method of the present invention, mirror event tracking systems are deployed for the purposes of profile creation and live traffic **analysis**. Hereafter, these are respectively referred to as the profiling system and the production system. The profiling system is where site profiles are created, amended and validated. Site profiles are the user-defined parameters used by the identification, extraction and **analysis** modules to: identify the site for a logged-page record; associate logged-page records with site-pages; associate site-pages with event triggers, event pre-triggers, and parse-methods. Site profiles are preferably created, amended and validate by profilers, which are authorized users that create, amend and validate profiles using a graphical user interface. Profilers are also authorized to synchronize site profile records between the profiling system and the production system.

The following Table provides is an outline description of the profile creation process as performed by a profiler, according to an embodiment of the present invention:

TABLE 6

1. Create a site record.
   1.1. Enter a unique site name through the graphical user interface (GUI).
   1.2. Enter the site home URL.
   1.3. Enter notes
2. Create site-domain records associated with a site.
3. Create a session with logged-pages for a site.
   3.1. Using the GUI, invoke a browser to access a site home URL.
   3.2. The browser uses a proxy agent to record HTTP transmissions on the site.
   3.3. ETS creates a new session, and creates a logged-page record as the profiler browses each page.
   3.4. Browse the site for all pages related to tracked events.
   3.5. Force the session to expire.
4. Review the session and the logged-pages. For each event to be tracked:
   4.1. Locate the trigger page.
   4.2. Locate all pages that contain attributes related to the event.
   4.3. If the trigger page is loaded by a redirect, mark the redirect as the pre-trigger page.
5. Create site-page records for each logged-page identified in 4.
   5.1. Enter a name for the new site-page.
   5.2. Create the identification-method for the site-page.
      5.2.1. Choose identification-method algorithm.
      5.2.2. If signature-matching, enter signature by copying and pasting text from the rendered logged-page, or from the HTML source of the logged-page.
      5.2.3. If keyword-indexing, enter keywords and threshold values using the GUI.
6. Create event-type record.
   6.1. Enter 3 character event-type identifier.
   6.2. Enter description.
   6.3. Associate attributes under which event-related content will be parsed.
      6.3.1. Create any new attributes required to parse event-related content
         6.3.1.1. Enter new attribute's name.
         6.3.1.2. Enter notes to describe attribute.
         6.3.1.3. Select attribute-data-type.
      6.3.2. Add attribute to event.
7. Create site-events to be tracked.
   7.1. Select the site.
   7.2. Select event-type to be tracked on the site.
   7.3. Add all site-pages associated with the site-event.
      7.3.1. Identify the event-sequence-code for the site-page.
         7.3.1.1. If the site-page is a trigger, enter T.
         7.3.1.2. If the site-page is a pre-trigger, enter P.
         7.3.1.3. Otherwise, enter any value.
      7.3.2. If the site-page contains page attributes used by the event, create a parse-method.
         7.3.2.1. Select parser type (HTTP or HTML).
         7.3.2.2. Some parsers require a parse-map to parse page-attributes.

TABLE 6-continued

7.3.2.2.1. Retrieved the logged-page record.
7.3.2.2.2. Create a parse-map based on the logged-page record.
7.3.2.2.3. Associate parse-map with the parse-method.
7.3.2.3. Enter additional parser-specific parameters.
8. Validate data identification and event detection.
8.1. Retrieve the session created in 3 for validation.
8.2. Reset expired session for page identification
8.3. Review reprocessed session to confirm that pages are properly identified
8.4. If pages are not properly identified, amend the identification-method.
8.5. Reset session for event detection.
8.6. Review reports to confirm that expected events were detected.
8.7. If events are not properly detected, then
8.7.1. If a site-page was not identified, amend the identification-method.
8.7.2. If the trigger page was not logged, create a new session and log the pages necessary to trigger the event.
8.7.3. If the site-pages and triggers are not properly associated, amend the site-page-event association.
9. Validate data extraction
9.1. Retrieve the session created in 3 for validation.
9.2. Reset the session for data extraction.
9.3. For each identified-page with a parse-method:
9.3.1. Review the extracted parse-attributes to confirm that the page was parsed properly
9.3.2. If parse-attributes are not properly extracted, then amend the parse-map.
10. Export updated site profile data to production system

'416 Patent at 16:45-19:23.

'416 Patent at 15:5-16:44. This discussion would have reinforced a POSITA's understanding that claims recite the term consistent with its plain and ordinary meaning, and a POSITA would have understood the term with reasonable certainty.

46. The language of the claims themselves would also have reinforced a POSITA's understanding of these terms. For example, Claim 14 of the '946 Patent recites that "predicting" (future activity) be (analyzed) "based on live traffic." '946 Patent Claim 14. Claim 15 of the '946 Patent recites that "predicting" (future activity) be (analyzed) "based on stored client-server information." '946 Patent, Claim 15. This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "analyzing the parameter data sets to predict future user activity."

47. The '416 and '946 patents would further reinforce a POSITA's understanding of the plain and ordinary meaning of the term "dynamically maintain[ing] the predetermined

selection parameters based upon revisable, operator-defined instructions on how to select and extract information from a text page; and analyzing the parameter data sets to predict future user activity" based on the recitations of the claims themselves. For example, dependent claims 3 and 18 of the '946 Patent further recite that analysis comprises "reporting at least one of the following: a session detail of the session; an event detail of an event; a purchase detail of a purchase; and a purchase summary of a purchase." '946 Patent at Claims 3 and 19. This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed analysis.

48. For at least the reasons set forth above, I conclude that the term "dynamically maintain[ing] the predetermined selection parameters based upon revisable, operator-defined instructions on how to select and extract information from a text page; and analyzing the parameter data sets to predict future user activity" should be given its plain and ordinary meaning and is not indefinite.

C. "provide profiling and analysis of at least one session"

49. The phrase "provide profiling and analysis of at least one session" appears in Claims 1 and 17 of the '946 Patent. This phrase is not indefinite because a POSITA would understand the phrase with reasonable certainty.

50. A POSITA would have understood that the '946 Patent describes non-limiting examples of "provid[ing] profiling and analysis of at least one session."

- "According to the application architecture of an embodiment of the present invention, the storage medium 1 70 stores logged-page records, user-defined parameters for identification and extraction (hereinafter, "site **profiles**"), extracted parse-attributes, event data and report data. In its preferred embodiment, the storage medium is implemented as two logically separate databases-a transactional database for storing logged-page records, site **profiles** and transaction processing elements, and a reporting database for storing report data. According to an embodiment of the system and method of the present invention, the reporting database is populated by a SQL script scheduled to run on a nightly basis. The data

on the reporting database may be refreshed any time should re-processing of logged-page data become necessary, as when site **profiles** are amended.

According to the application architecture of an embodiment of the present invention, and referring back to FIG. 1, the **profile** management module 160 has four components: site management 161, session verification 162, **profile** reports 163, and administration 164. In its preferred embodiment, the **profile** management module has a web-based graphical user interface (GUI), and its four components are sections that may be accessed from the GUI main menu.

The site management section provides interfaces for creating, amending and deleting sites, site-domains, site-pages, event-types, attributes, identification-methods and parse-methods. It also provides interfaces to view and retrieve various objects, and associate objects with one another. The session verification section provides interfaces for creating sessions and logged-pages for existing sites, viewing an existing session, viewing individual logged-page records within a session, viewing identified logged-pages in a session, and viewing extracted attributes associated with an identified-page. The session verification section also provides interfaces for resetting the session for data identification, extraction and **analysis**. The **profile** reports section provides a summary view of **profile**, session, logged-page and event data to assist in the **profile** management process. It also provides access to application error logs.

Access to the administration section is restricted to authorized personnel. It provides interfaces for: **profile** user management, event and attribute creation, data purge, data reset and a job manager. Access is restricted to high-level profile administrators. **Profile** user management interface provides **profile** user creation, deletion and modification functions. The event and attribute creation interface provides event-type and attribute-type creation, as well as event to attribute association functions. The data purge interface allows the administrator to purge logged-pages and other data based on a date range. The data reset interface allows the administrator to reset status codes on session, logged-page and identified-page records to re-process said records for data identification, extraction and **analysis**. The reset interface also allows the administrator to re-generate data on reporting database for a specified date range. The job-manager interface allows the administrator to start, stop and view daemon jobs that execute the data identification, extraction and **analysis** algorithms, as well as the nightly report generation script.

According to an embodiment of the system and method of the present invention, mirror event tracking systems are deployed for the purposes of **profile** creation and live traffic **analysis**. Hereafter, these are respectively referred to as the **profiling** system and the production system. The **profiling** system is where site **profiles** are created, amended and validated. Site **profiles** are the user-defined parameters used by the identification, extraction and **analysis** modules to: identify the site for a logged-page record; associate logged-page records with site-pages; associate site-pages with event triggers, event pre-triggers, and parse-methods. Site **profiles** are preferably created, amended and validate by **profilers**, which are authorized users that create, amend and validate **profiles** using a graphical user interface. **Profilers**

are also authorized to synchronize site **profile** records between the **profiling** system and the production system.

The following Table provides is an outline description of the **profile** creation process as performed by a **profiler**, according to an embodiment of the present invention:

TABLE 6

1. Create a site record.
   1.1. Enter a unique site name through the graphical user interface (GUI).
   1.2. Enter the site home URL.
   1.3. Enter notes
2. Create site-domain records associated with a site.
3. Create a session with logged-pages for a site.
   3.1. Using the GUI, invoke a browser to access a site home URL.
   3.2. The browser uses a proxy agent to record HTTP transmissions on the site.
   3.3. ETS creates a new session, and creates a logged-page record as the profiler browses each page.
   3.4. Browse the site for all pages related to tracked events.
   3.5. Force the session to expire.
4. Review the session and the logged-pages. For each event to be tracked:
   4.1. Locate the trigger page.
   4.2. Locate all pages that contain attributes related to the event.
   4.3. If the trigger page is loaded by a redirect, mark the redirect as the pre-trigger page.
5. Create site-page records for each logged-page identified in 4.
   5.1. Enter a name for the new site-page.
   5.2. Create the identification-method for the site-page.
      5.2.1. Choose identification-method algorithm.
      5.2.2. If signature-matching, enter signature by copying and pasting text from the rendered logged-page, or from the HTML source of the logged-page.
      5.2.3. If keyword-indexing, enter keywords and threshold values using the GUI.
6. Create event-type record.
   6.1. Enter 3 character event-type identifier.
   6.2. Enter description.
   6.3. Associate attributes under which event-related content will be parsed.
      6.3.1. Create any new attributes required to parse event-related content
         6.3.1.1. Enter new attribute's name.
         6.3.1.2. Enter notes to describe attribute.
         6.3.1.3. Select attribute-data-type.
      6.3.2. Add attribute to event.
7. Create site-events to be tracked.
   7.1. Select the site.
   7.2. Select event-type to be tracked on the site.
   7.3. Add all site-pages associated with the site-event.
      7.3.1. Identify the event-sequence-code for the site-page.
         7.3.1.1. If the site-page is a trigger, enter T.
         7.3.1.2. If the site-page is a pre-trigger, enter P.
         7.3.1.3. Otherwise, enter any value.
      7.3.2. If the site-page contains page attributes used by the event, create a parse-method.
         7.3.2.1. Select parser type (HTTP or HTML).
         7.3.2.2. Some parsers require a parse-map to parse page-attributes.

TABLE 6-continued

7.3.2.2.1. Retrieved the logged-page record.
7.3.2.2.2. Create a parse-map based on the logged-page record.
7.3.2.2.3. Associate parse-map with the parse-method.
7.3.2.3. Enter additional parser-specific parameters.
8. Validate data identification and event detection.
8.1. Retrieve the session created in 3 for validation.
8.2. Reset expired session for page identification
8.3. Review reprocessed session to confirm that pages are properly identified
8.4. If pages are not properly identified, amend the identification-method.
8.5. Reset session for event detection.
8.6. Review reports to confirm that expected events were detected.
8.7. If events are not properly detected, then
8.7.1. If a site-page was not identified, amend the identification-method.
8.7.2. If the trigger page was not logged, create a new session and log the pages necessary to trigger the event.
8.7.3. If the site-pages and triggers are not properly associated, amend the site-page-event association.
9. Validate data extraction
9.1. Retrieve the session created in 3 for validation.
9.2. Reset the session for data extraction.
9.3. For each identified-page with a parse-method:
9.3.1. Review the extracted parse-attributes to confirm that the page was parsed properly
9.3.2. If parse-attributes are not properly extracted, then amend the parse-map.
10. Export updated site profile data to production system

'416 Patent at 16:45-19:23.

This discussion would have reinforced a POSITA's understanding that claims recite the term consistent with its plain and ordinary meaning, and a POSITA would have understood the term with reasonable certainty.

51. The language of the claims themselves would also have reinforced a POSITA's understanding of these terms. For example, dependent claims 2 and 18 further recite that profiling comprises "identifying a site, associating a logging page record with the site, and associating at least one site page with event triggers, event pre-triggers, and parse methods." '946 Patent at Claims 2 and 18. This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis."

52. Additionally, dependent claims 3 and 19 further require that "analysis" comprises "reporting at least one of the following: a session detail of the session; an event detail of an event; a purchase detail of a purchase; and a purchase summary of a purchase." '946 Patent at Claims 3

and 19. This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis."

53. Additionally, dependent claim 20 further recites that "analysis" includes "the session detail, and generation of the session detail comprises reporting at least one of the following: activity start and end dates, by a site name; a session identifier; a time at which the session was created; a number of page views in the session; a number of purchase events detected in the session; a number of events detected in the session; and the session's duration and a user identifier." This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis." '946 Patent at Claim 20.

54. Additionally, dependent claim 21 further requires that "analysis" includes "the event detail, and generation of the event detail comprises reporting at least one of the following: activity start and end dates, by a site name; a per event record that matches at least one of the parameters; the session in which the event was detected; a time of the event; a site of the event; an event type; and a user identifier." This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis." '946 Patent at Claim 21.

55. Additionally, dependent claim 22 further recites that "analysis" includes "the purchase detail, and generation of the purchase detail comprises reporting at least one of the following: an activity start and end dates, by a site name; a per purchase item that matches at least one of the parameters; a purchase date; a time at which the purchase occurred; a site of the purchase; a name of the purchased item; a unit price of the item; a quantity; a price; a user identifier; and a credit-card type." This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis." '946 Patent at Claim 22.

56. Additionally, dependent claim 23 further recites that "analysis" includes "the purchase summary, and generation of the purchase summary comprises reporting at least one of the following: activity start and end dates, by a site, a site record that matches at least one of the parameters; at least one of the site name; a number of purchases on the site; a number of items purchased on the site; a value of purchases on the site; a number of page views on the site; and a duration of all the sessions within the site." This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis." '946 Patent at Claim 23.

57. Additionally, dependent claim 24 further recites that "analysis" includes "the purchase summary, and generation of the purchase summary returns a category code and a source code referral parameter for the sessions recorded by the rewritten embedded URLs." This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis." '946 Patent at Claim 24.

58. Additionally, dependent claim 29 further recites that "analysis" includes "analysis performed on live traffic." This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis." '946 Patent at Claim 29.

59. Additionally, dependent claim 30 further requires that "analysis" includes "analysis performed on stored client-server information." This context would further reinforce a POSITA's reasonably clear understanding of the scope of the claimed "profiling and analysis." '946 Patent at Claim 30.

60. Because a POSITA would have understood the plain and ordinary meaning of this term with reasonable certainty, it is not indefinite.

VI. CONCLUSION

I declare under penalty of perjury that the foregoing is true and correct.

Dated: February 28, 2022

Dr. Omid Kia, Ph.D.